

Air Delivery of Platoon Base Camp

***Director
Aerial Delivery
Directorate
For
JOCOTAS***



Unclassified

DoD Aerial Delivery

Personnel & Cargo
HIGH and LOW altitudes
All capable aircraft:
Fixed wing, rotary wing & UAS
Most capabilities Joint
Partnering with All DoD
Stakeholders



Joint Precision Aerial Delivery System overview (fielded and S&T capabilities)

Low Cost Aerial Delivery System (LCADS) family of systems and impact

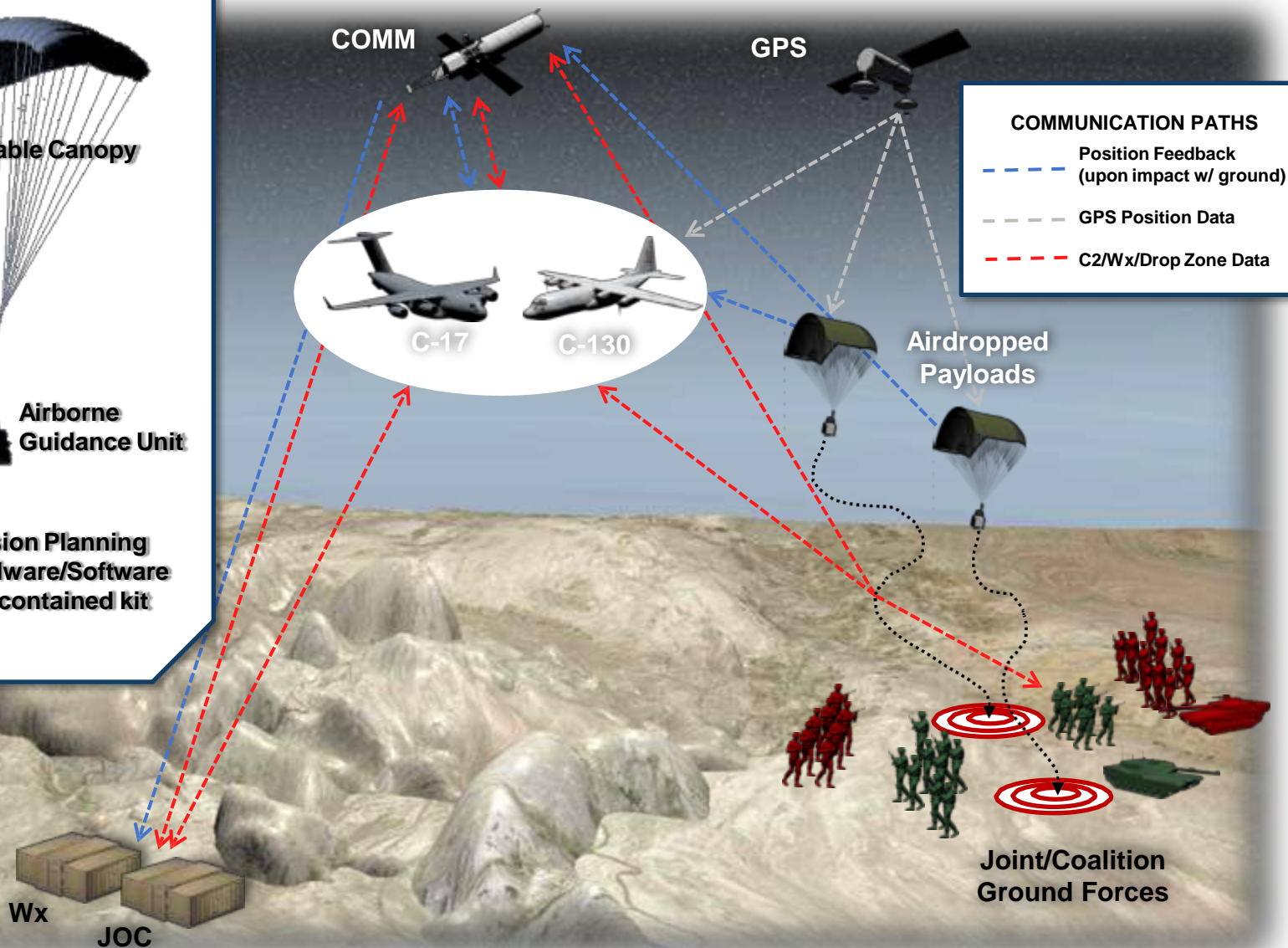
Enhanced Speed Bag & High Speed Container Delivery System rapid fieldings

Heavy Drop, High Altitude Low Opening prototypes, HSL Capabilities and certification

Videos

JPADS

(Joint Precision Airdrop System)



Family of Systems for JPADS

Micro Light Version: 10-150 lbs



*Demo'ed during JMDSE JCTD:
No requirement, no S&T investments
HALO and UAS variants*

Ultra Light Version: ~250-700 lbs



*USMC Lead/POR no
Army requirement
MCOE ID'ed wt for SU/Squad*

Extra Light Version: ~700-2400 lbs JPADS 2K PoR



*CDS wt range
Type classified
Lead: USA PM-FSS*

Light Version: ~5001-10,000 lbs JPADS 10K PoR



*Currently in production
Lead: USA PM-FSS*

Medium Version: ~15,000-42,000 lbs Completed Army ATO



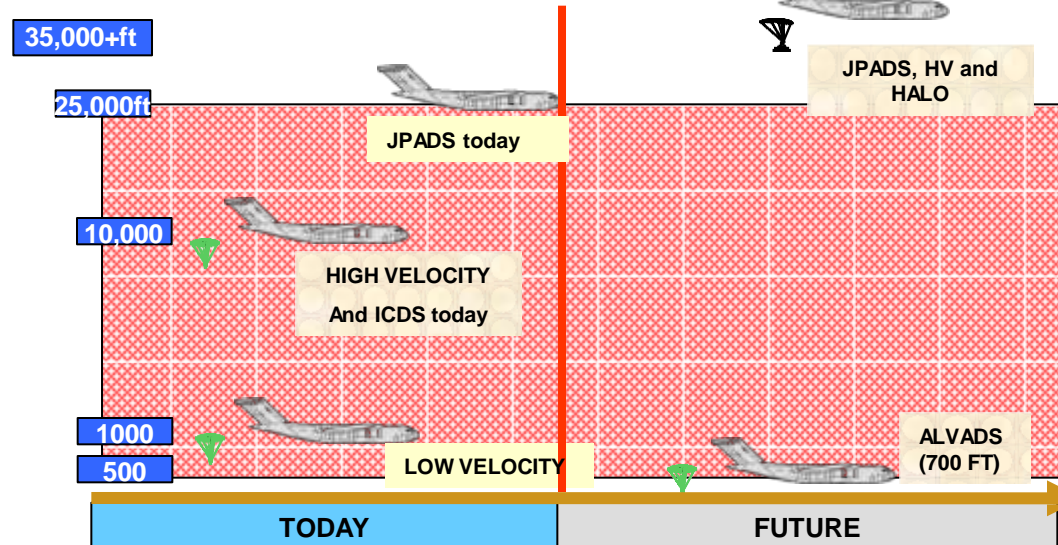
No requirement, no S&T investments



JPADS Benefits



- Increases AC/Aircrew/Load Survivability
- Allows Multiple Loads to Multiple Destinations From One CARP
- Permits Smaller More Numerous DZs
 - Less Ground to Mark and Secure
 - Less Unit Exposure
 - Less Risk of Unit/DZ Detection
- Negotiates Time/Distance Barriers
 - Global Reach
 - Extended/Non-Contiguous Battlespace
 - Slow Ineffective GLOCs



- Projects Combat Power via aerial insertion into all environments

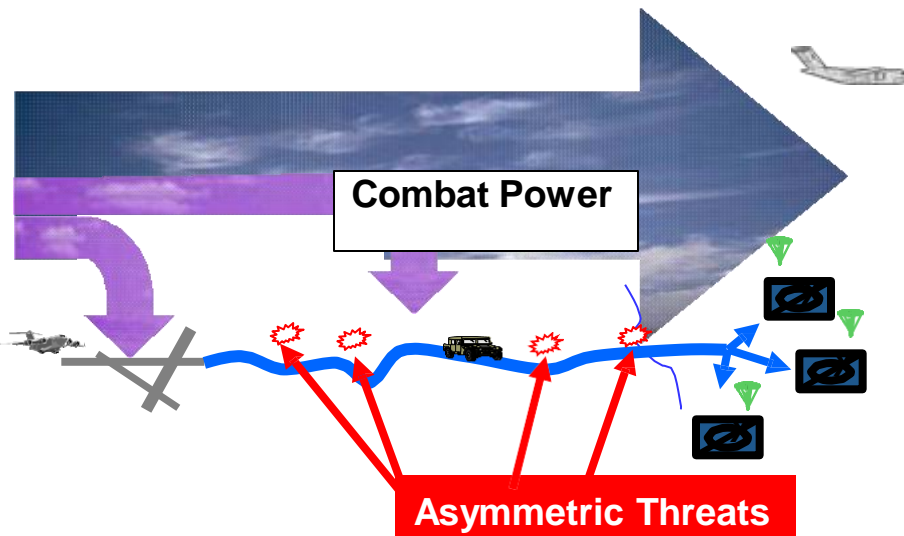
- Use in deployment, vertical envelopment, forced entry, denied access, and possible assault

- A Unit of Action multiplier

- Maintains "pace" with warfighters
- Allows greater freedom of maneuver

- Creates Minimal Logprint

- Direct "Seamless" Delivery
- Reduces Support Requirements
 - GLOC Security
 - GLOC Engineer Support
 - Fuel/Food/Maintenance/Med





How vulnerable would a helicopter be in this valley?

How vulnerable would a convoy be in this valley and how would they traverse it in winter?

How will the Army resupply Warfighters here? How many Soldiers and vehicles would it take?



Unclassified

DEMANDS OF COMBAT AIRDROP



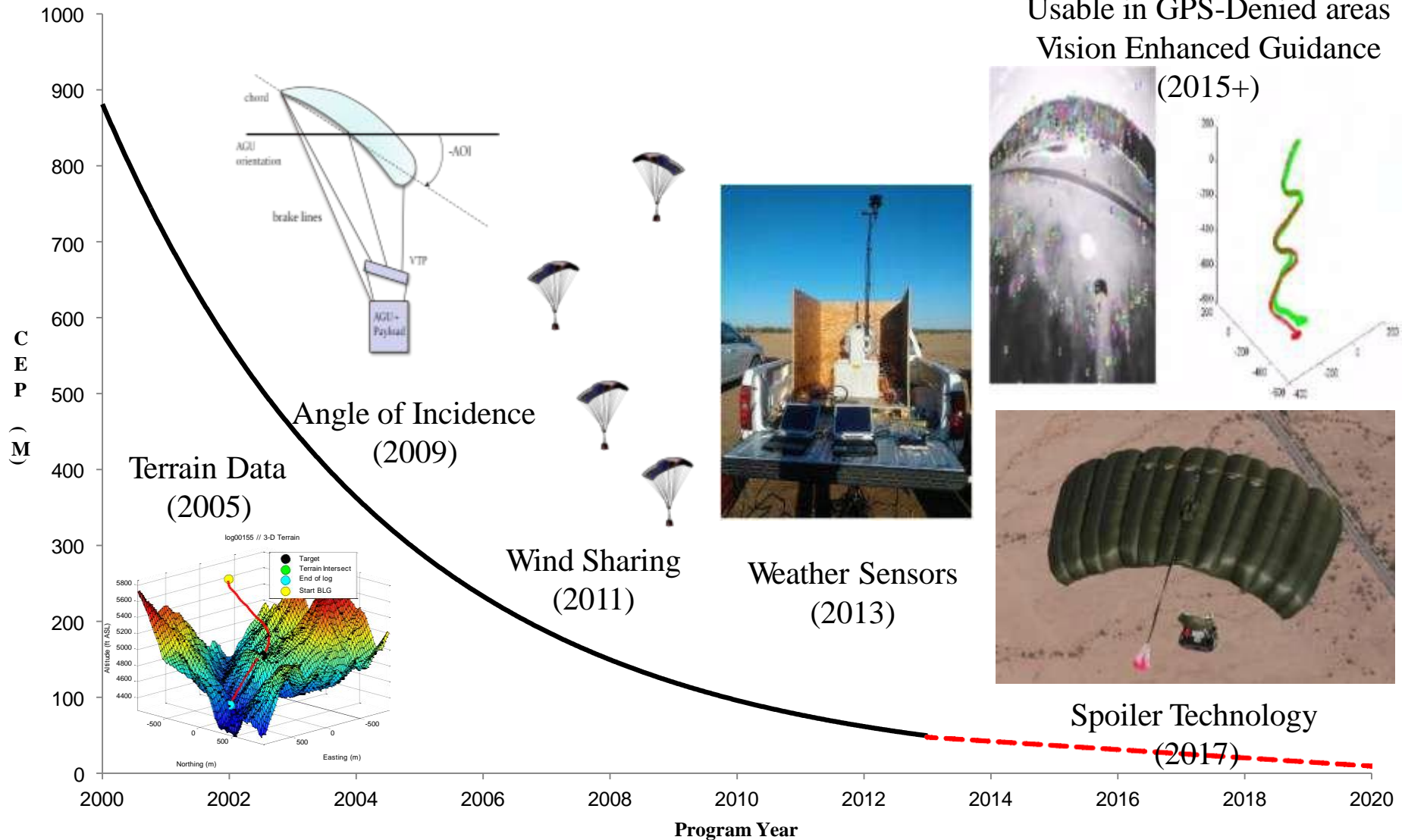
100 x 350 m

30° Slope Either Side Of Centerline

50° Slope on Trailing Edge



Precision Airdrop Enhancement Roadmap



UNCLASSIFIED

Does the Army desire to provide resupply/UGS to roof-tops and/or street corners

Future Airdrop Delivery supplies “inside” the wire



Should be
available in less
than 5 years
2Klbs



Should be
available in less
than 10 years



Micro-light Weight JPADS: 10-150lbs



85 lbs of Medical Supplies in Case



65 lbs of Emergency Blood Resupply in Cooler



Approx. 150lbs FRW Cargo Configuration

Accuracy Requirements:
50m (T) / 10m (O)

Waterproof AGUs



Approx. 30lbs FRW UAS Configuration

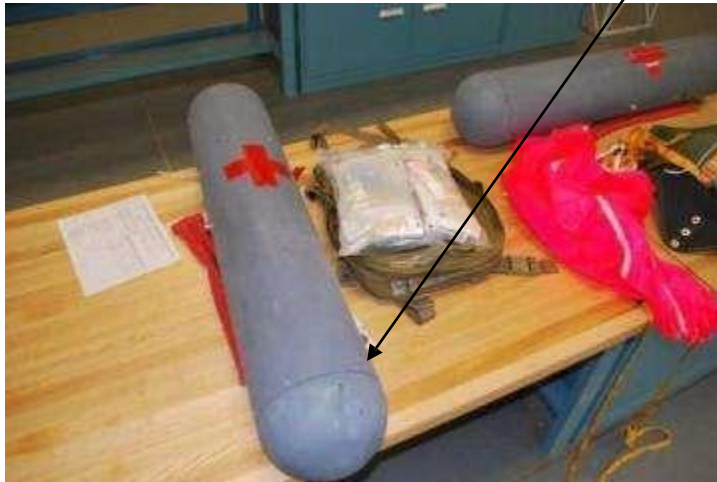
Demo'ed JPADS drops from Fixed wing UAS



Provider POD



Drops 5k-10k ft due to UAS
limitations



TCCC Kit



Blood

Demonstrated fielded and prototype airdrops from VTOL UAS



Parachute Systems Demonstrated:

LCLA Canopies

T-10

T-10R

Single Cross

Micro-Light Weight JPADS

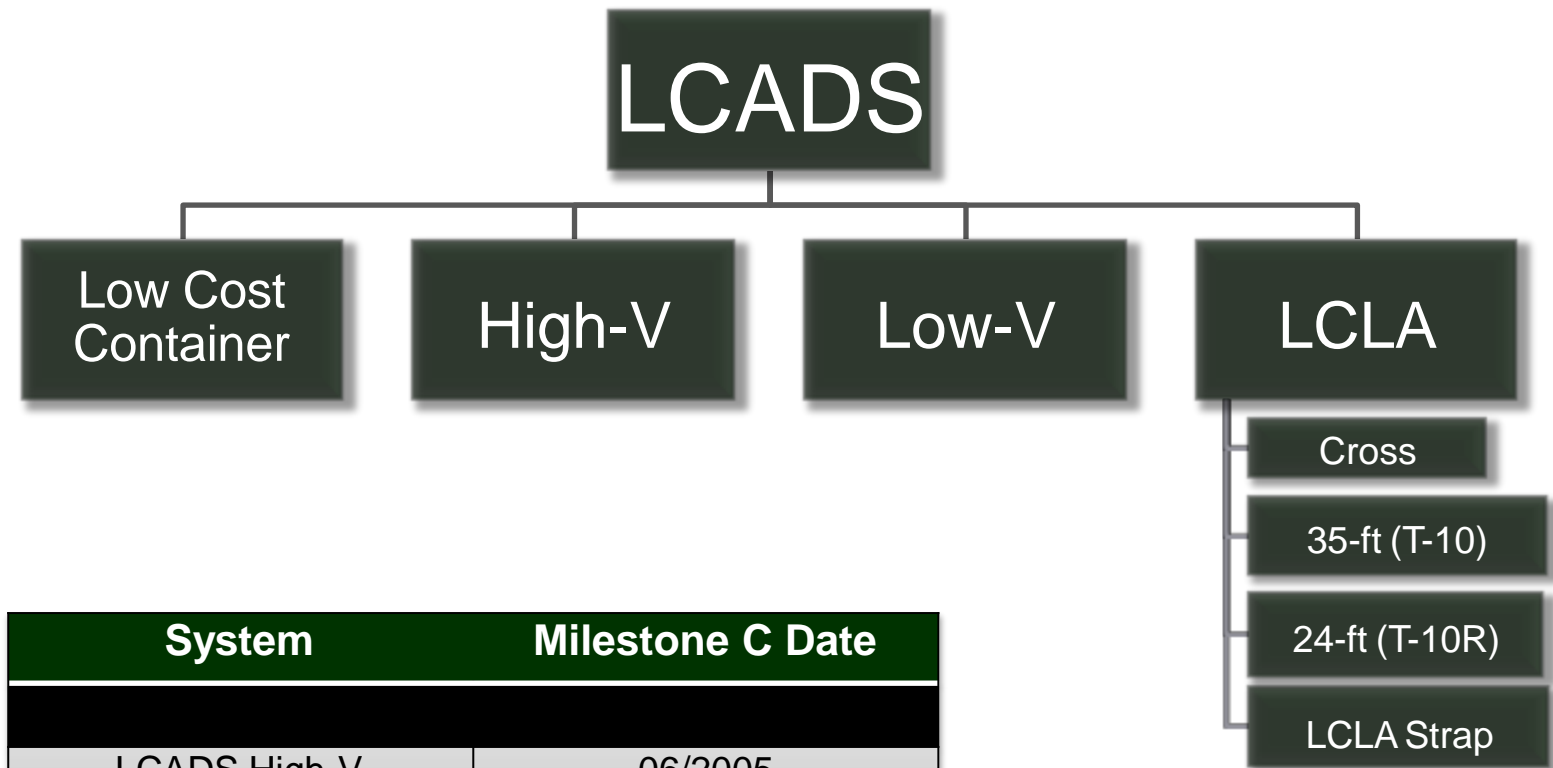
Ultra-Light Weight JPADS

G-12

Demo'ed at AEWE Spiral G on 2Nov at Ft Benning (2-Ultrafllys).

UNCLASSIFIED

Low-Cost Aerial Delivery Systems (LCADS)



Original AAO: 5,423 LCCs, LVs and HVs: In 2011 Army was purchasing 10K/Month!!

Low-Cost Aerial Delivery Systems (LCADS)

- **LOW COST CONTAINER (LCC):**
 - 2,200 lbs. load capacity
 - Delivers serviceable load in 13-knot ground winds
 - Thousands fielded since FY06
- **LOW VELOCITY & HIGH VELOCITY PARACHUTES**
 - 2,200 lbs. load capacity
 - Performance Similar to 26-Ft High Velocity and G-12 Low Velocity Parachutes
 - Pre-packed by the manufacturer
 - Simple design, easy to build, able to meet surge requirements
 - Broad manufacturing base
 - Breakaway Static Line at all altitudes
 - One-time-use/expendable, no requirement to recover/retrograde
 - LCADS Low Velocity parachute is system of choice in OEF



Low-Cost Aerial Delivery Systems (LCADS)

Low Cost Low Altitude (LCLA)

LCLA is a specialized subset of LCADS, that are designed for low altitude opening between 150 and 500 feet above ground level. All are pre-packed from the manufacturer and are expendable items. However, some utilize out-of-service T-10 and T-10R parachutes that may be repacked for training.



Cross Parachute



Triple Cross Parachute



24 Foot Diameter Cargo Parachute



35 Foot Diameter Cargo Parachute

One-time-use Polypropylene

- Cross Parachute 80–200 lbs Suspended
- Double Cross, 201 – 400 lbs Suspended
- Triple Cross, 401 – 600 lbs Suspended

Each parachute comes with four LCLA Straps which is very similar to the A-7A strap

Semi-Durable “Rounds”

- 35-Foot Diameter, 100 – 500 lbs Suspended
- Double 35 Foot Diameter, 501 – 1,000 lbs Suspended
- 24-Foot Diameter, 80 – 300 lbs Suspended
- Double 24 Foot Diameter, 301 – 600 lbs Suspended

Low-Cost Aerial Delivery Systems (LCADS)



PM FSS

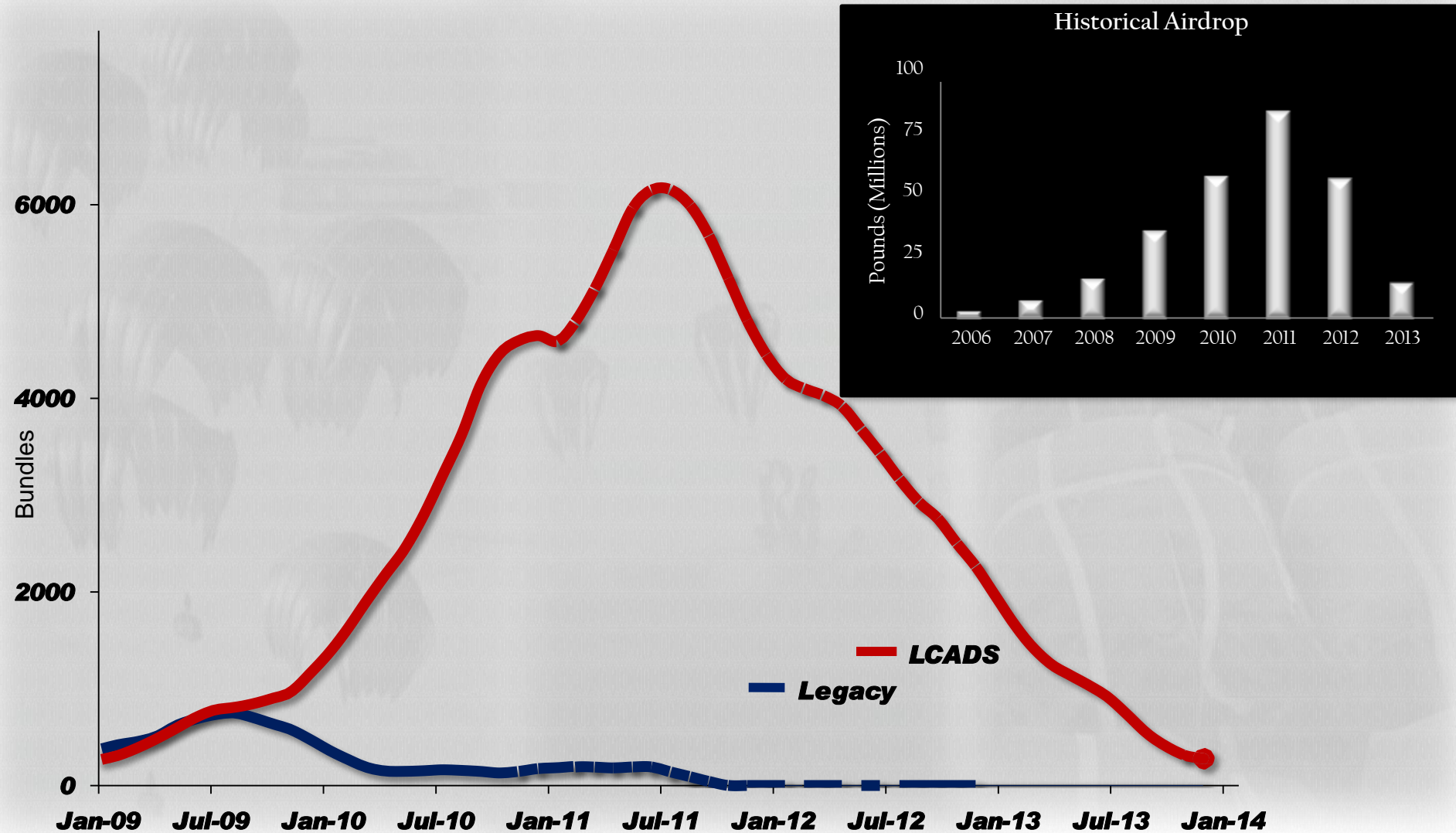
UNITED STATES ARMY
PRODUCT MANAGER
FORCE SUSTAINMENT SYSTEMS



PM Force Sustainment Systems
A Member of the Force Projection Team

UNCLASSIFIED

Historical Airdrop Trends



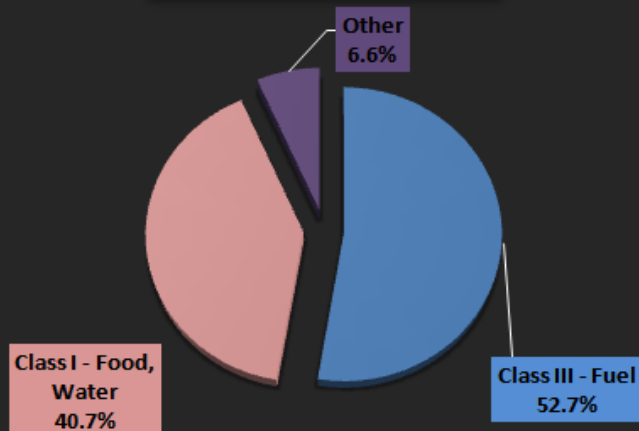
2013 Airdrop Statistics

Summary

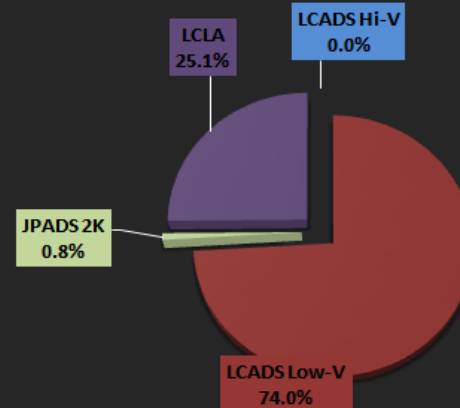
- ◇ Total Weight Airdropped | *15,000,000 lbs ◇
- ◇ Total Payloads Airdropped | *12,150 bundles ◇
 - ◇ 99.2% LCADS, 0.8% JPADS 2K ◇
 - ◇ 75% decrease from 2012 ◇

*Approximate

Class of Supply



Airdrop by Chute



Problem:

There is no standardized equipment to quickly and efficiently deliver small, easily portable bundles of supplies from a low hovering helicopter. This forces soldiers to use ad-hoc methods of "Speed Bag" delivery which often break apart on impact, damage the supplies, and are difficult for the units on the ground to recover.

Partnership with AMRDEC

Key points:

- "Speed Bag" delivery is performed regularly in the AOR. Packages are in free fall with limited accuracy and survivability resulting in the loss of equipment and additional demands for logistic resupply.
- The Enhanced Speed Bag will solve this problem of resupply at the lowest level of end user for small caliber ammunition, food and water weighing between 125 and 200 lbs per container.
- The ESBS allows for units to be self sufficient & resupply where airland is not possible and typical methods are not practical due to terrain, brown out conditions etc.etc.

Current Status:

- Technical Readiness Level - 7/8
- FTAP Hill Class V static drops 98% Survivability demonstrated (July 2013)
- Conducted flights for AWR with expiration date of 14 June 2014 for test use. (12 successful drops Dec , 2013)
- Participated in AEWE, Ft Benning Ga. (18 successful drops Jan, 2014) Final Report Due June, 2014
- Conducted ATEC survivability and reliability customer test 3-14 Mar 2014 (22 drops UH 60 , 22 drops C130 successful drops) Final report due Apr,2014

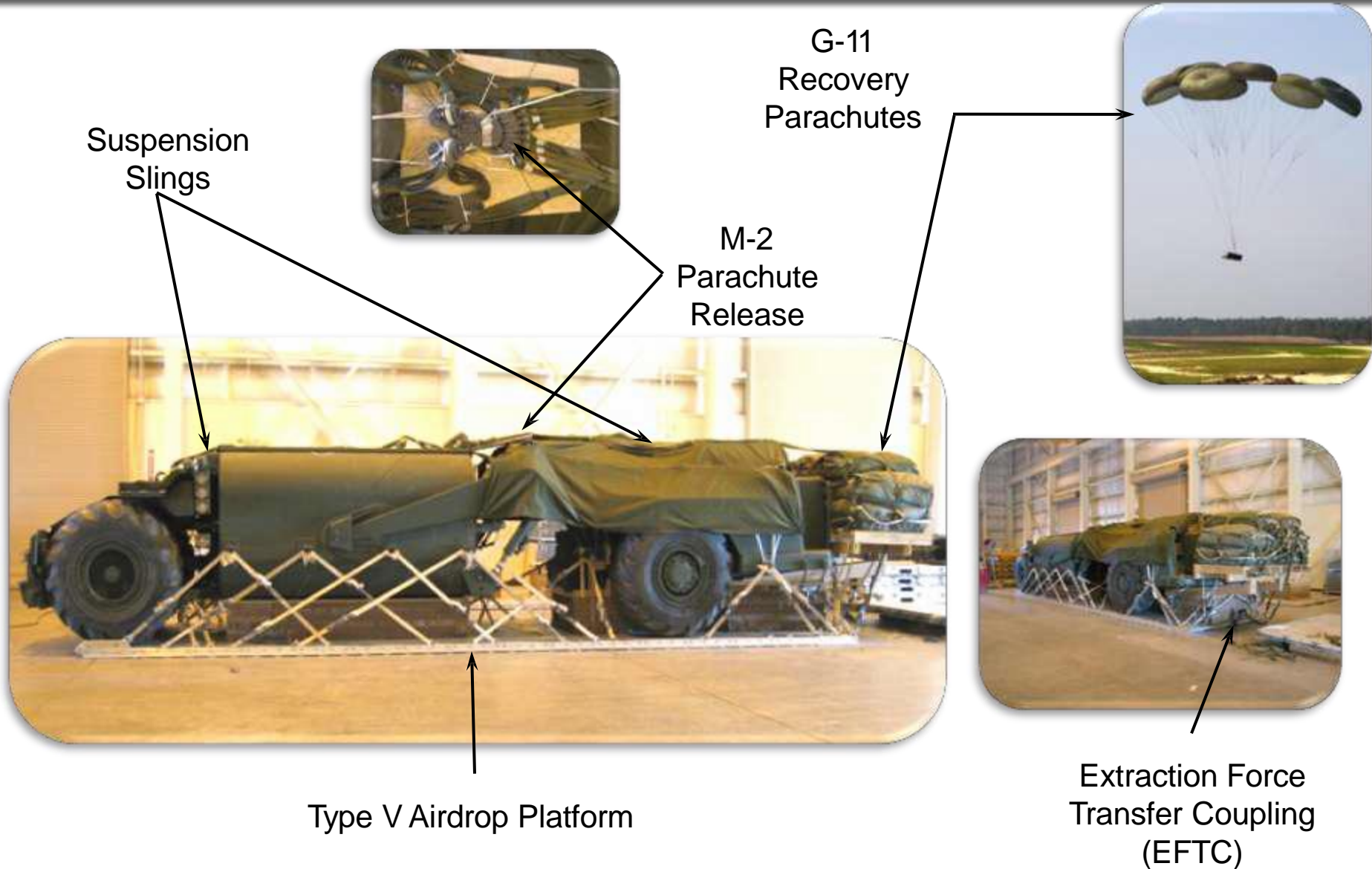


- FY11 Joint Capability Technology Demonstration for airdrop at 250 feet and 250 knots
 - Successfully fielded and dropped in March 2014 by AFSOC
 - Sponsored by TRANSCOM and OSD
 - Partnered with USAF AMC A3/A5/TE
- AFRL/NSRDEC strong partnership to enhance this capability in FY14/15/16 as part of the Precision Airdrop FCC
 - Increasing the altitude and the amount of weight extracted
 - Potentially replace the existing method of airdrop via gravity
- Now POR with PM-FSS



Example of Heavy Drop Capability

Low altitudes (500-1200+ft AGL) and up to 42Klbs



HALO Systems



LCADS-LV HALO System



Skirt Reefed G-12



G-11B HALO System



One-Time Use Plywood Platform

JIEDDO 5-10K ICDS Systems



Wireless Activation Device



2K HV-> LV LCADS



2K 15ftRS to G-12



Low Cost Container

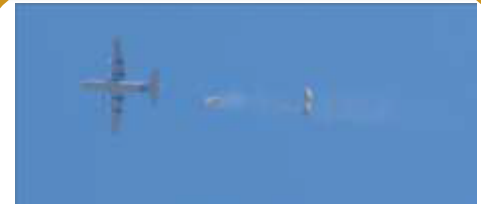
2K ICDS Systems

- Use the WAD for transition from drogue canopy to main parachutes (Working "iWAD" now!)
- Communicates with the JPADS-MP
- Payload delivery weight ranging from 500-40,000 lb
- CEP < 400m



JPADS-MP --> CAT

UNCLASSIFIED



BPADS

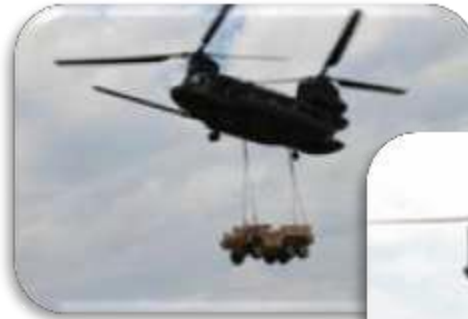
HSL Certification

- **NSRDEC is the HSL certification agency for DoD**
- **Process:**
 - NSRDEC provides design guidance for materiel with HSL requirements.
 - Static Lift Test
 - Proof-Load Test
 - Flight Evaluation
- **Payoff → Safety**
 - Lift provisions and structure tested/evaluated to ensure they will not fail during HSL operations.
 - Ensure that HSL sling limitations are not exceeded.
 - Flight evaluations demonstrate stable flight characteristics.
 - HSL rigging procedures are published, providing the proper safe rigging procedures to the field.
- An item that is HSL Certified is considered to have HSL capability, i.e. can be safely sling loaded by specified helicopters.



HSL Certification

- Recent HSL Certifications (sample)
 - Supacat 6x6
 - ANTSW-7A Air Traffic Control Center
 - Camel II
 - M153 CROWS
 - STUAS SRS
 - WIN-T Inc2 - PoP, SNE, & VWP
 - Panama City Generation III (PC Gen III) Mine Roller System (MRS)



- MANY Aerial Delivery capabilities available/fielded
- New systems/components require certification.
 - Smoother process if designed for airdrop in advance!
- Airdrop is used extensively for resupply of COPS/FOBs (Saved MANY lives by IED/sniper avoidance, reduction in convoys)
 - “ 29,000 warfighters and 42 FOBs resupplied exclusively by airdrop for 6months during 2011”
 - Peeked at 200 CDS bundles (~1800lbs each) being airdropped/day in July2011
- Focused on lower cost, min/zero retrograde and increased accuracy (inside the wire consistently)
- Heavy airdrop fielded up to 42Klbs, demo'ed up to 60Klbs (low altitude only)
- Delivering a large fraction of a Platoon base camp should be possible but not currently a requirement. may be possible Airdrop of UGVs/sensors, Material Handling equipment/vehicles, HESCO/other barriers
- In some scenarios, it may be LESS costly to airdrop than to airland/convoy...

Unclassified

QUESTIONS?



USA NSRDEC



JPADS ... THE JDAM FOR LOGISTICS